



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10 HANFORD PROJECT OFFICE
712 SWIFT BOULEVARD, SUITE 5
RICHLAND, WASHINGTON 99352

June 27, 1995

Reply To
Attn Of: HW-124

Linda K. McClain, Assistant Manager
Environmental Restoration
U.S. Department of Energy
P.O. Box 550, H4-83
Richland, Washington 99352

Re: Action Memorandum: Expedited Response Action Proposal;
100-BC-1 Demonstration Project; U.S. Department of Energy
Hanford Site; Richland, Washington

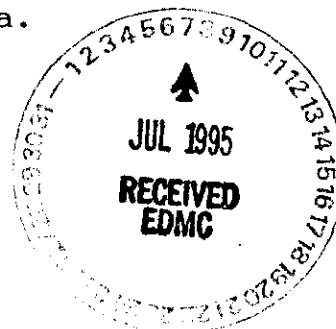
Dear Ms. McClain:

This Action Memorandum constitutes approval of the U.S. Department of Energy (DOE) proposed non-time-critical removal action as outlined in the 100-BC-1 Demonstration Project Expedited Response Action Proposal.

Public comments on the proposal were received and responses have been issued by the U.S. Environmental Protection Agency (EPA). Overall, the public is supportive of taking this action. In particular the public was pleased to see cleanup occurring this summer in the 100 Area.

The EPA and the Washington State Department of Ecology (Ecology) recommend that the soil be stored in an environmentally protective manner within the 100-BC-1 Operable Unit and be sent to the Environmental Restoration Disposal Facility (ERDF) when it becomes operational in the summer of 1996. The alternative to storage is disposal in the mixed waste facility (W025). However, initial cost estimates indicate that placing waste in the mixed waste facility operated by the Operations and Maintenance contractor will cost approximately 3.5 million dollars more than using the ERDF facility.

This non-time-critical removal action is being taken to address the threats posed by these sites. Information gained during this removal action will be used in the remedial design effort for the remainder of the 100 Area.



ACTION MEMORANDUM

100-BC-1 NON-TIME CRITICAL REMOVAL ACTION

I. PURPOSE

The purpose of this non-time-critical removal action is to mitigate any threat to public health and the environment from the 116-B-4, 116-B-5 and 116-C-1 waste sites located in the 100-BC-1 Operable Unit and to collect information. This information will be used in the remedial design effort for the remainder of the 100 Area.

II. BACKGROUND

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act, as amended (CERCLA), EPA proposed the 100 Area of the Hanford Site for inclusion on the National Priorities List (NPL) on June 24, 1988. In November 1989, the 100 Area was included on the NPL. Pursuant to the terms of the Hanford Federal Facility Agreement and Consent Order, EPA has been designated the lead regulatory agency for this project.

A. Site Description

The 100 BC-1 Operable Unit is located in the Northwestern portion of the Hanford Site and borders the Columbia River. The 100-BC-1 Operable Unit contains 41 waste sites. The first waste sites to be addressed in the 100 BC Area are those waste sites associated with reactor effluents. There are 15 effluent waste sites that will be addressed in the first 100 BC Area Record of Decision. This action will allow for cleanup of 3 of the 15 sites. The three sites are further described as follows:

The 116-B-4 french drain is an inactive liquid waste site located east of the B-Reactor building (see fig. 1). This french drain is 1.2 m (4 ft) in diameter by 6 m (20 ft) deep. The site received spent acid rinse water from decontamination of fuel element spacers and other reactor hardware. Acids were neutralized prior to discharge to the french drain. Chemicals disposed to the drain include sodium oxalate and sodium sulfamate. No volatile organic compounds (VOC), semi-volatile organics, or pesticide contaminants have been identified. Radionuclide contamination may exist both near the surface and at depth.

The 116-B-5 Crib is an inactive, low-level liquid waste site located approximately 150 ft north of the former 108-B Building (see fig. 1). The crib received tritium wastes from the tritium recovery process from irradiated lithium-aluminum target elements. Barium, zinc, mercury, and radionuclides have been detected in concentrations above Hanford Site background levels.

116-C-1 is an inactive liquid waste site. This unlined trench is located 305 m (1,000 ft) south of the Columbia River. It was used to receive reactor retention basin cooling water contaminated by ruptured fuel elements. Analytical data indicate contamination at levels above Hanford Site background levels for radionuclides, chromium, and organics.

B. Site Characterization

The 116-B-4 french drain was sampled for radionuclides in 1976. During this sampling it was determined that the extent of contamination was up to 20 feet below ground surface. Data indicated that the drain contained mixed fission products and plutonium. This information is documented in Radiological Characterization of the Retired 100 Areas Report. The radionuclides of concern remaining in the site are Cesium 137 at 208 pCi/g, Europium 152 at 420 pCi/g and Plutonium 239 at 8.6 pCi/g. In 1992, an investigation was conducted at an analogous facility in the 100 H Area to determine if there were any chemicals of concern. This investigation determined that no metals or organics were present in the 116-H-4 french drain. Further information concerning the characterization of this crib may be found in the 100-BC-1 Limited Field Investigation Report. One difference between the two cribs is the operational history. Because of the difference in operations the 116-B-4 crib is suspected of having residual chromium contamination and will be sampled for this during excavation.

The 116-B-5 crib was sampled in 1976 and in 1992. This information is documented in the Radiological Characterization of the Retired 100 Areas Report and the 100-BC-1 Limited Field Investigation Report. Sampling data indicates that contamination is present to a depth of up to 17 feet below ground surface. The crib is contaminated with various fission products, such as Cesium 137 and Europium 152, as well as the metals barium, mercury, and zinc. The volatile organic compounds of carbon disulfide and toluene were also detected. Europium 152 was the only radionuclide detected in significant quantities, with a reading of 1.5 pCi/g. Mercury was detected at 2.8 ppm, which is near the RCRA Land Disposal Restriction (LDR)

prohibition concentration of 4.0 ppm. Barium was measured at levels of 484 ppm. Zinc concentrations were below levels of concern. Carbon disulfide was detected at 200 ppb and will be retained as a contaminant of concern. Toluene was detected at 77 ppb and is thought to have originated from lab contamination, since toluene was commonly used as a lab solvent wash.

The 116-C-1 trench was sampled in 1976 for radionuclides and in 1992 it was sampled for radionuclides, metals, and organics. This information is documented in the Radiological Characterization of the Retired 100 Areas Report and the 100-BC-1 Limited Field Investigation Report. The trench is contaminated with mixed fission products at depths up to 40 feet below ground surface. The major contaminants include Cesium 137 at 5500 pCi/g, Europium 152 at 2300 pCi/g and Europium 154 at 337 pCi/g. Sampling data for metals show levels of chromium at 236 ppm. Volatile and semi-volatile contaminants detected include bis(2-Ethylhexyl)phthalate at 62 ppb, diethylphthalate at 340 ppb, di-n-butylphthalate at 4300 ppb and toluene at 2 ppb.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

A. Present Conditions

Historical data and the limited field investigation results indicate that hazardous substances present at these sites pose a significant risk to human health and the environment.

The actions are being taken to reduce the risk to human health and the environment. This action is also being taken to gather information to determine actual costs for removal of this type of waste in the 100 Areas and will also demonstrate the incremental costs associated with cleanup from a recreational land use scenario to a residential land use scenario.

Public comment for this proposal was held from May 15, 1995 to June 15, 1995. Overall the public is supportive of this action and was pleased to see the agencies "getting on with cleanup".

IV. ENDANGERMENT DETERMINATION

Actual and threatened releases of hazardous substances from this site, if not addressed by implementing the response actions selected in this action memorandum, may present an imminent and substantial endangerment to public health, welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS**A. PROPOSED ACTIONS**

Bechtel Hanford Company (BHI), the Environmental Restoration Contractor for USDOE, prepared an Engineering Evaluation/Cost Analysis (EE/CA) in order to develop remedial alternatives that were appropriate for the 100-BC-1 Demonstration Project. The EE/CA proposed two remedial alternatives. They are described as follows:

1. No Action Alternative

The no action alternative would propose no interim actions to be taken at the operable unit. The three waste sites at the 100-BC-1 Operable Unit would be handled as part of the 100-BC-1 Operable Unit Record of Decision (ROD), which is projected to be issued in the late fall of 1995. No accelerated cleanup would occur in the 100 Area.

2. Remove/Store Alternative

The Remove/Store Alternative would excavate the hazardous substances, including the radionuclides, at the three waste sites and store the excavated materials on-site at the 100-BC-1 Operable Unit. The Remove/Store Alternative does not include treatment or disposal of the excavated material at this time. Treatment and disposal of this waste will be included as part of the 100-BC-1 Operable Unit ROD.

Approximate waste volumes for the 116-B-4, 116-B-5, and 116-C-1 waste sites are 3 m^3 (4 yd^3), 994 m^3 ($1,300 \text{ yd}^3$), and $31,345 \text{ m}^3$ ($41,000 \text{ yd}^3$), respectively. All excavated material will be stored at the 100-BC-1 operable unit, using coated fabric bags.

Any clean material, as verified by sampling, will be stockpiled and placed back into the excavation once the contaminated soils are removed. Any material encountered which is subject to the RCRA LDR requirements will be stored separately from the other contaminated soils at the 100-BC-1 operable unit until the material is treated to meet disposal site waste acceptance criteria, or until DOE seeks a waiver of this LDR requirement to treat such contaminated material and this waiver is approved by EPA.

Conventional excavation and material handling methods will be used. The disposal facility proposed for this alternative, ERDF, is not yet operational. Once ERDF is operational, the contaminated soils will be sent to ERDF, after either treatment of these soils is complete or a waiver of the LDR requirements is granted by EPA.

Number two, the Remove/Store Alternative, is selected based upon effectiveness of the action and the abatement of the threats to public health and the environment posed by the hazardous substances located at the waste sites in the 100-BC-1 Operable Unit. The No-Action Alternative would not address these immediate threats.

B. ESTIMATED COSTS

DOE's estimated cost for the cleanup of these three waste sites is fifteen million dollars. However, since one of the objectives of this project is to obtain real cost figures, EPA and Ecology believe the \$15 million estimate is very likely excessive, and will be reduced as the project proceeds. A breakdown of these estimated costs is presented below:

Analytical Samples.....	2,000,000
Excavation	4,000,000
Handling and Storage.....	9,000,000
Total.... 15,000,000	

C. APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs)

The ARARs determined to be practicable for this cleanup action are 40 CFR 300, Subpart E; the Hanford Federal Facility Agreement and Consent Order (part 3, Article XIII, Section 38); and the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA), 42 U.S.C. § 9601 et seq. In addition, this action will comply with the State of Washington Model Toxics Control Act (MTCA) cleanup standards (Chapter 173-340 WAC). This action will also use the draft NRC and EPA standard of 15 millirem above background for radionuclide cleanup as an action level for radionuclides.

D. PROJECT SCHEDULE

The non-time-critical removal action to address these three waste sites at the 100-BC-1 operable unit are scheduled to begin on July 5, 1995. The actual removal of contaminated soils is expected to last at least 6 months. The contaminated soils are expected to be stockpiled on-site and then shipped to ERDF soon after construction of the ERDF is completed in June, 1996.

VI.**RECOMMENDATION**

This decision document represents the selected removal alternative, Option B (section IV), for the three waste sites (116-B-4, 116-B-5 and 116-C-1) in the 100-BC-1 operable unit of the U.S. Department of Energy Site located near Richland, Washington. In addition, as stated in the 100-BC-1 Demonstration Project Expedited Response Action Proposal (EE/CA), lower priority sites at the 100-BC-1 operable unit may be characterized.

This proposal was developed in accordance with CERCLA, as amended, and the NCP. This decision is based on the Administrative Record for the 100-BC-1 Operable Unit. Conditions at the 100-BC-1 site meet the NCP section 300.415 criteria for a removal action.

EPA is the lead regulatory agency for this project. If you have any further questions, please contact Dennis Faulk of EPA's Hanford Project Office at (509) 376-8631.

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 Randall F. Smith, Director
 Hazardous Waste Division
 EPA, Region 10

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 Michael A. Wilson
 Nuclear Waste Program Manager
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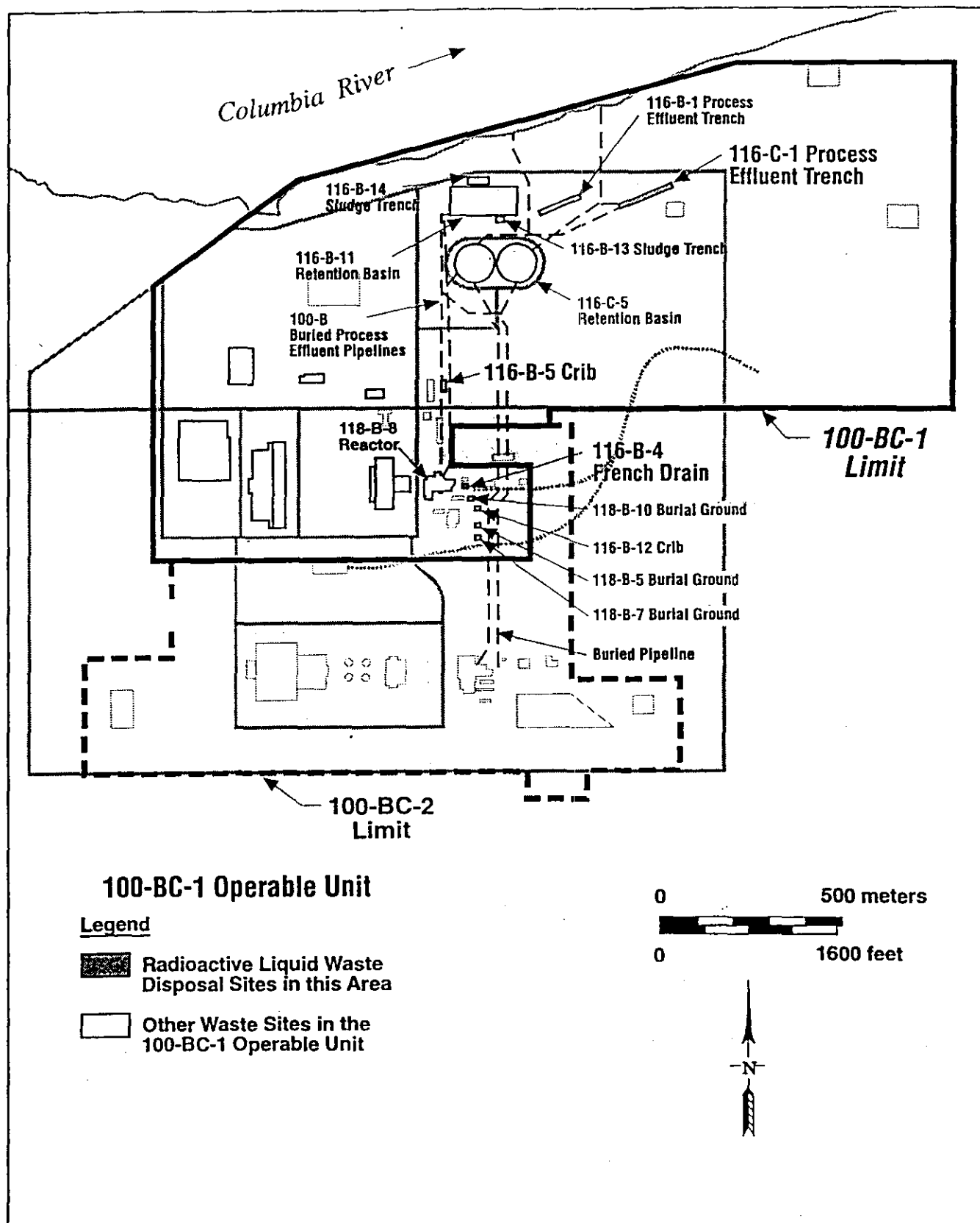
June 27, 1995
 Date

6/27/95
 Date

cc: Wayne Soper, Ecology
 Nancy Werdel, DOE
 Administrative Record 100-BC-1

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Figure 1. 100-BC-1 Operable Unit Map.



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